

DR. ZHANG GE
ASSOCIATE PROFESSOR

Research focus

- Basic science and clinical-translational research in orthopedics & traumatology, including osteoporosis, osteonecrosis, fracture repair, osteoarthritis and rheumatoid arthritis.
- Exploring molecular mechanisms of musculoskeletal disorders, including osteoporosis, osteoarthritis, osteonecrosis, aged fracture repair and rheumatoid arthritis.
 - Identifying molecular targets with therapeutic potential in musculoskeletal disease.
 - Developing targeted delivery systems to accommodate specific therapeutic strategies in musculoskeletal disorders.

Dr. Zhang has led his group to publish a series of research work in *Nature Medicine, Arthritis & Rheumatism, Journal of Bone & Mineral Research, Bone and Osteoporosis International*.

Funded Project 1:

Toward a novel bone anabolic strategy for aged postmenopausal osteoporosis: Inhibiting miR-214 in osteogenic cells for promoting osteogenesis (Hong Kong General Research Fund)

Emerging evidence indicates that miRNAs play an important role in bone metabolism. miR-214, upregulated in aged fracture patients, is a differentially expressed miRNA in bone formation. miR-214 bone formation further promotes osteogenesis. miR-214 inhibition is suggested to improve bone formation and bone quality.



Funded Project 3:

Improving osteoporotic fracture repair: Role of estrogen receptor beta pathway blockade (Austrian AD Research Grant of the AO Foundation, 2014-2017)



张戈博士
Dr. Zhang Ge
Associate Professor

CURRICULUM VITAE of Dr. ZHANG GE (zhangge@hkbu.edu.hk)

Name: Zhang Ge

Academic qualifications:

1990.9-1995.7 B. Med Shanghai University of Chinese Medicine, Shanghai, China
1997.9-2000.7 M. Med. Institute of Orthopaedics & Traumatology, Shanghai University of Chinese Medicine, China
2000.9-2003.7 M.D. Institute of Orthopaedics & Traumatology, Shanghai University of Chinese Medicine & Department of Orthopaedics & Traumatology, The Chinese University of Hong Kong

Previous academic positions held:

1995.8-2000.11 Resident Institute of Orthopaedics & Traumatology, Shu Guang Hospital, Shanghai University of Chinese Medicine
2000.12-2004.2 Physician-in-Charge Institute of Orthopaedics & Traumatology, Shu Guang Hospital, Shanghai University of Chinese Medicine
2004.3-2007.6 Postdoctoral Research Fellow Department of Orthopaedics & Traumatology, The Chinese University of Hong Kong
2007.7-2012.8 Research Assistant Professor Department of Orthopaedics & Traumatology, The Chinese University of Hong Kong

Present academic position:

2012.9- Associate Professor Ge Zhang's Lab (www.gezhanglab.com), Institute for Advancing Translational Medicine in Bone & Joint Diseases, Hong Kong Baptist University & Teaching Division, School of Chinese Medicine, Hong Kong Baptist University

Previous relevant research work:

Technical expertise Bone bio-imaging, Bone histomorphometry, Bone biology, Bone biomechanics
Research area Molecular understandings and RNAi-based & phytotherapy-based translational research in osteoporosis, osteonecrosis, osteoarthritis, rheumatoid arthritis and fracture repair

Publication Records: 3 Theses; 9 Book Chapters; 106 SCI Papers; Sum of the Times cited (excluding self-citation): 220; h-index: 9

Ten Representative publications in the past ten years

1. Wang X, Guo B, ..., **Zhang G (Corresponding Author)**, Li Y (Corresponding Author). miR-214 targets ATF4 to inhibit bone formation. *Nat Med.* 2013 Jan;19(1):93-100
2. **Zhang G (Corresponding Author)**, Guo B, Wu H, Tang T, Zhang BT, ..., Zhang L (Corresponding Author), Qin L (Corresponding Author). A delivery system targeting bone formation surfaces to facilitate RNAi-based anabolic therapy. *Nat Med.* 2012 Jan 29;18(2):307-14
3. Xie XH, Wang XL, He YX, Liu Z, Sheng H, **Zhang G (Corresponding Author)**, Qin L (Corresponding Author). Promotion of bone repair by implantation of cryopreserved bone marrow-derived mononuclear cells in a rabbit model of steroid-associated osteonecrosis. *Arthritis Rheum.* 2012 May;64(5):1562-71
4. He YX, Liu Z, Pan XH, Tang T, Guo BS, Zheng LZ, Xie XH, Wang XL, Lee KM, Li G, Cao YP, Wei L, Chen Y, Yang ZJ, Hung LK, Qin L, **Zhang G (Corresponding Author)**. Deletion of estrogen receptor beta accelerates early stage of bone healing in a mouse osteotomy model. *Osteoporosis Int.* 2012 Jan;23(1):377-89.
5. **Zhang G**, Sheng H, et al. Continuous occurrence of both insufficient neovascularization and elevated vascular permeability in rabbit proximal femur during inadequate repair of steroid-associated osteonecrotic lesions *Arthritis Rheum.* 2009 Oct;60(10):2966-77.
6. **Zhang G**, Wang XL, Sheng H, et al. Constitutional flavonoids derived from Epimedium dose-dependently reduce incidence of steroid-associated osteonecrosis not via direct action by themselves on potential cellular targets. *PlosOne* 2009; 4: e6419
7. **Zhang G**, Qin L, et al. A Novel Semisynthesized Small Molecule Icaritin Reduces Incidence of Steroid-associated Osteonecrosis with Inhibition of both Thrombosis and Lipid-deposition in a Dose-dependent Manner. *Bone* 2009; 44: 345-56
8. **Zhang G**, Qin L, Shi Y. Epimedium-derived phytoestrogen flavonoids exert beneficial effect on preventing bone loss in late postmenopausal women: a 24-month randomized, double-blind and placebo-controlled trial. *J Bone Miner Res.* 2007 Jul;22(7):1072-9.
9. **Zhang G**, Qin L, et al. Flavonoids derived from herbal Epimedium Brevicornum Maxim prevent OVX-induced osteoporosis in rats independent of its enhancement in intestinal calcium absorption. *Bone.* 2006 Jun;38(6):818-25.

10. Zhang G (Corresponding Author), et al. A comparative study between axial compression and lateral fall configuration tested in a rat proximal femur model. *Clin Biomech (Bristol, Avon)*. 2005 Aug;20(7):729-35.